

**1. (currently amended)** Code-A software object that contains ~~that includes~~ symbolic names and is executable in a ~~program an~~ execution environment ~~for the software object, the execution environment resolving the symbolic names, the symbolic names including system symbolic names defined in the execution environment, the execution environment executing that in a processor, and the software object being contained in a memory device accessible to the processor, resolves the symbolic names, the symbolic names including system symbolic names defined in the execution environment and~~ the ~~code software object~~ comprising:

- one or more obfuscated symbolic names that correspond to system symbolic names;
- a first association between the obfuscated symbolic names and encrypted forms of the corresponding system symbolic names; and
- a static watermark that has been added to the code,
- the execution environment including a second association of the encrypted forms with information needed to resolve the corresponding system symbolic names ~~and the execution environment~~; using the first and second associations to resolve the obfuscated symbolic names, and using the static watermark to determine ~~authenticity of the code whether the software object has been altered prior to the software object being executed in the program execution environment~~.

**2. (currently amended)** The code software object set forth in claim 1 wherein:

- the static watermark's value is a digest of the code software object prior to addition of the static watermark.

**3. (currently amended)** The code software object set forth in claim 1 wherein the code software object further comprises:

- other obfuscated names that replace names defined in source code from which the code software object was made.

**4. (currently amended)** The code software object set forth in claim 1 wherein:

the codesoftware object is downloaded to the program execution environment for execution.

**5. (currently amended)** The codesoftware object set forth in claim 1, the codesoftware object further comprising;

an encrypted first key, the first key having been used to produce the encrypted forms of the corresponding system symbolic names,

the execution environment having access to a second key that can decrypt the first key; and

the execution environment using the second key to decrypt the first key and the first key to make the encrypted forms in the second association.

**6. (Original)** An improved class loader that loads a class in a program execution environment in a host computer system, the class being required for execution of a program in the program execution environment and the program including a first association between symbolic names in the program and encrypted forms of symbolic names defined in the class and the improved class loader being characterized in that:

the improved class loader extends the class on execution of the program in the program execution environment by

using the first association and a second association between the encrypted forms and information used to resolve the symbolic names defined in the class to resolve the symbolic names in the program, and

adding a method to the program which determines whether the program has been modified by the host.

**7. (Original)** The improved class loader set forth in claim 6 wherein:

the method is encrypted prior to being added to the program; and

the improved class loader decrypts the method on adding the method to the program.

**8. (Original)** The improved class loader set forth in claim 7 wherein:

the program includes information from which the method determines whether the program has been modified by the host.

**9. (Original)** The improved class loader set forth in claim 6 wherein:

the program includes a static watermark; and  
the static watermark is the information from which the method determines whether the program has been modified by the host.

**10. (Original)** The improved class loader set forth in claim 9 wherein:

the static watermark's value is a digest of the program prior to addition of the static watermark.

**11. (Original)** The improved class loader set forth in claim 9 wherein:

The static watermark is at a location in the program that is determined by a key; and  
the method has access to the key and uses the key to locate the static watermark.

**12. (Original)** The improved class loader set forth in claim 6 wherein:

the improved class loader has access to an encryption key that was used to produce the encrypted forms in the first association; and  
the improved class loader uses the encryption key to produce the second association on loading the class.

**13. (Original)** The improved class loader set forth in claim 12 wherein:

the program includes an encrypted form of the encryption key used to produce the second association; and  
the improved class loader obtains the encryption key by using a decryption key to decrypt the encrypted form of the encryption key.

**14. (Original)** A method of protecting a program that is executed in a host computer system from the host, the program being executed in a program execution environment that loads a class, the

class being required for execution of the program in the program execution environment, and the program including a first association between symbolic names in the program and encrypted forms of symbolic names defined in the class, the method being characterized by the steps performed in the class loader of:

making a second association between the encrypted forms and information used to resolve the symbolic names defined in the class, the first and second associations being used to resolve the symbolic names, and

adding a method to the program which determines whether the program has been modified by the host.

**15. (Original)** The method set forth in claim 14 wherein:

the added method is encrypted; and

the step of adding the method includes the step of decrypting the method.

**16. (Original)** The method set forth in claim 14 wherein:

the program includes information which the added method uses to determine whether the program has been modified by the host.

**17. (Original)** The method set forth in claim 14 wherein:

the program includes a static watermark; and

the static watermark is the information used by the added method to determine whether the program has been modified by the host.

**18. (Original)** The method set forth in claim 17 wherein:

the static watermark's value is a digest of the program prior to addition of the static watermark; and

the added method reads the static watermark, recomputes the digest, and compares the recomputed digest with the watermark's value.

**19. (Original)** The method set forth in claim 17 wherein:

the added method uses a key to locate the static watermark in the program.

**20. (Original)** The method set forth in claim 14 wherein:

the class loader has access to an encryption key that was used to produce the encrypted forms in the first association; and

the step of making a second association includes the steps of accessing the encryption key and using the encryption key to produce the encrypted forms.

**21. (Original)** The method set forth in claim 20 wherein:

the program includes an encrypted form of the encryption key that was used to produce the encrypted forms; and

the step of accessing the encryption key includes the step of using a decryption key to decrypt the encrypted form of the encryption key.

**22. (Currently amended)** A method of protecting a programsoftware object that is executed in a host computer system from the host, the programsoftware object being executed in an program execution environment for the software object in the host computer system, the execution environment loadingthat loads a class that is used in executing the programsoftware object in the program execution environment and the method being characterized by:

steps performed prior to ~~executing execution of the~~ executing execution of the programsoftware object in the program execution environment comprising

replacing symbolic names in the programsoftware object that are defined in the class with obfuscated symbolic names corresponding thereto; and

making a first association between the obfuscated symbolic names and encrypted forms of the replaced symbolic names; and

steps performed ~~on-executingduring the execution of the~~ during the execution of the programsoftware object in the program execution environment comprising

making a second association between the encrypted forms of the symbolic names and information required to resolve the symbolic names;

16 |           adding a method to the programsoftware object that determines whether the  
17 | programsoftware object has been modified by the host;  
18 |           using the first and second associations to resolve the obfuscated symbolic names;  
19 | and  
20 |           executing the added method to determine whether the programsoftware object has  
21 | been modified by the host.

1 | **23. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 22 further characterized in that:  
3 |       the steps performed prior to executing the programsoftware object further comprise the  
4 | step of  
5 |       obfuscating other symbolic names that are not defined in the class.

1 | **24. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 22 further characterized in that:  
3 |       the method to be added is encrypted; and  
4 |       the step of adding the method includes the step of decrypting the method.

1 | **25. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 22 further characterized in that:  
3 |       the programsoftware object includes information from which the method can determine  
4 | whether the programsoftware object has been modified by the host; and  
5 |       in the step of executing the added method, the added method uses the information to  
6 | determine whether the programsoftware object has been modified by the host.

1 | **26. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 25 further characterized in that:  
3 |       the steps performed prior to executing the programsoftware object further comprise  
4 | adding a static watermark to the programsoftware object; and  
5 |       the static watermark is the information used by the added method.

1 | **27. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 26 further characterized in that:

3 |         in the step of adding the static watermark, the location of the static watermark in the  
4 | programsoftware object is determined by a key; and

5 |         in the step of executing the added method, the added method uses the key to locate the  
6 | watermark.

1 | **28. (Currently amended)** The method of protecting the programsoftware object set forth in claim  
2 | 22 further characterized in that:

3 |         the step of making the second association includes the steps of

4 |                 obtaining a key used to make the encrypted forms in the first association and

5 |                 using the obtained key to make the encrypted forms in the second association.

1 | **29. (Currently amended)** The method set forth in claim 28 further characterized in that:

2 |         the programsoftware object includes an encrypted form of the encryption key that was used  
3 | to make the encrypted forms in the first association; and

4 |         the step of obtaining the key includes the step of using a decryption key to decrypt the  
5 | encrypted form of the encryption key.